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I, LEANNE MYNOTT, MANAGER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002950402 for a patent by ISSAM ABOULOUKME as filed on 26 July 2002.

WITNESS my hand this  
First day of August 2003

LEANNE MYNOTT  
MANAGER EXAMINATION SUPPORT  
AND SALES



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RETRACTABLE SELF ROLLING SYSTEM  
FOR BLINDS, AWNINGS AND COVERS.  
FIELD OF THE INVENTION

This invention relates to self-rolling mechanisms for items such as blinds, awnings and covers, especially those based on a spring mechanism as used in conventional blinds and 5 awnings.

BACKGROUND OF THE INVENTION

Conventional spring blinds are provided with a so-called hollow keyway tube, onto which one end of suitable blind fabric or other material is attached, the remainder of the material being wrapped or rolled around the periphery of the tube. A spring mechanism is provided 10 within the hollow tube, which is supported between suitable brackets. The blind fabric may be caused to unroll for any desired length (up to the limit of material rolled on the tube), usually by pulling on it, which causes the tube to rotate about its axis, thereby winding up (ie tensioning) the spring mechanism. A tensioning means is provided which prevents the spring from unwinding by itself. However, upon releasing the spring mechanism, the tube is 15 able to re-roll the unfurled material back up onto itself.

Such an arrangement is particularly suitable for vertically hung blinds, although the same principles may be applied in other situations where a cover (eg swimming pool cover) or awning is required to extend over a specified area.

In such situations however, especially in horizontal arrangements such as pool covers, there 20 is a limit to the useful span of cover which can be conveniently achieved (ie considering the length of material which may be unrolled), requiring larger spring mechanisms to accommodate increasing lengths of material to be extended and rewound. This of course means increasing difficulty of operation, as it becomes necessary to pull against the increasing tension of larger springs over increasing lengths of material required to be 25 unrolled.

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## OBJECT OF THE INVENTION

It is therefore an object of the present invention to overcome or at least ameliorate some or all of the foregoing disadvantages by providing an improved retractable rolling system, relying in principle on the use of more than one sheet of material (and especially two sheets) 5 rolled about the keyway tube of an otherwise conventional spring blind type mechanism, each of the sheets extending generally (but not necessarily) in opposite directions, so that in the case of two sheets of material pulled in opposite directions, the span of extended material is effectively doubled for each revolution of the tube, when compared with a single sheet.

10 In this way, the span covered by a particular size of spring mechanism may itself be effectively doubled. This follows from the fact that the spring is twisted by the rotation of the tube. For a given number of revolutions of the tube, double the coverage will be achieved. It will of course be appreciated that compared with conventional spring blind systems in which the keyway tube remains supported between fixed brackets, in many of the 15 improvements described herein, the keyway tube will advantageously be free to travel as the self rolling system is unwound, the free end of one fabric portion itself being securely anchored or attached (instead of the keyway tube being held in a fixed location as in a conventional arrangement). However, the keyway tube may be located in fixed arrangement in certain applications and the two or more sheets of material unwound 20 therefrom, each being unfurled in the direction required.

It is apparent that as the self retracting spring unit travels and is being unwound that the spring tension must be retained. The best methods for doing this is to lock the wheels into a channel like track as seen in figure 1, 3 or on to guide wires, but not restricted to these guide wires or tracks. The spring mechanism could be attached to a bracket mounted to a wheel or wheels as seen in figure 2 or directly on to the wheel unit. Then place the wheel unit inside the track so as not to allow the spring tension to release.

At the very least, the invention provides an alternative to previously known methods of utilising self rolling mechanisms in relation to larger spans required to be covered by blinds, awnings or covers and the like.

## DISCLOSURE OF THE INVENTION

According to the present invention there is provided a retractable self rolling system based on the principles involved in a conventional spring blind, namely suitable fabric or material affixed to and wound about a keyway tube which is spring tensioned against a suitable 5 restraining means to prevent winding up when in the extended or unwound position, releasing means to allow the tensioned roller to rewind the tube (and hence the material extending therefrom) under the action of the tensioned spring when released, except that the improvements herein reside in two or more sheets of fabric or other suitable material (rather than a single sheet of material as in a conventional blind) being wound conjointly about the 10 keyway tube, and the keyway tube itself in preferred embodiments being allowed to travel during unwinding and winding up as opposed to remaining in a stationary position as in a conventional arrangement.

It will be generally appreciated that in such a preferred arrangement, one end of one sheet of fabric or material will itself be secured in suitable position for use, whilst the free end of 15 the other fabric sheet (where two only are utilised), will correspond with the free end of blind material in a conventional single sheet arrangement, thus allowing the keyway tube to move or travel as the rolling mechanism is unrolled. However, whilst this is the preferred arrangement, especially in situations such as for use in swimming pool covers, no such limitation is actually meant in relation to the use of the invention as a whole and other 20 arrangements, particularly for awnings and the like, where one or both ends, or the keyway tube itself are held in fixed location may be utilised as required. Embodiments of the invention may find practical application as pool covers, ground covers, for shading, as hot house covers, caravan annexes and extensions and so forth.

It will also be appreciated in situations where the rolling mechanism is utilised as say a 25 swimming pool cover that there are considerable advantages in having the two sheets of material unroll from a common tube since each piece of material may be conveniently shaped to correspond to that portion of the pool over which it is to be extended.

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The placing of the wheel unit into the tracks or in another configuration of wheel unit placed onto guide wire prevents automatic spring tension release. The spring at the end of the tube (not necessary keyway tube) maybe fixed by means of wheels and or brackets.

Furthermore, it may be advantageous to provide or hood or cover arrangement over the 5 rolling mechanism to protect it, particularly in outdoor situations

Preferably, in situations where the keyway tube is allowed to travel, such travel will be assisted by providing the ends of the tube itself, or the ends of a frame in which such tube is mounted, with wheels which will assist the rolling of the tube, especially keeping the fabric of the cover above the surface to be covered, thereby assisting the rolling of the tube and its 10 material. This may be accomplished by having the wheels of larger diameter than the fully wound tube. On the other hand such wheels may conveniently be caused to run in appropriate grooves or tracks, in which case the position of the tracks itself will determine such clearance. It will also be understood that the position of any such wheels will depend on several factors in the design of the specific unit to be employed. But in any event, the 15 wheels may be fitted as stated to the ends of the tube itself or to convenient positions adjacent the ends of the frame or ~~or~~ <sup>or</sup> other support structure. Similarly any suitable roller type arrangement may be substituted for the wheels.

Alternatively, the ends of the tube may be conveniently arranged in such other frame independent of the rolling mechanism itself or other facility such as wire guides (utilising for 20 example pulley type wheels) to allow the tube to travel in the direction in which the blind or cover material is to be rolled/unrolled, but restricting lateral movement along the axis of the tube, thereby giving stability to the arrangement as a whole.

With advantage, two or more self rolling mechanisms according to the invention may be coupled together to extend the area which may be covered. In this way, the end of one 25 material panel will be connected by suitable means to the end of another material panel extending in opposite direction from the next adjacent rolling mechanism.

When used as a pool cover, the mechanism according to the invention has the advantage of being more fully supported than a simple roll out tarpaulin or cover. One advantage

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following from this arrangement is that leaves etc are more readily kept on the cover (and so prevented from falling into the pool) so that they are transported away from the pool area and may be removed conveniently by a suitable transporting mechanism or spreader type arrangement and allowed to drop say to the side, during retraction of the mechanism. In this regard, a fin bar, may be provided with extension pieces or arms to assist in sweeping the leaves off the cover as it rolls.

Although the cover material for a pool will be more fully supported during rolling and unrolling than a simple unsupported roll out cover, in use, it may be allowed to rest on the pool area if desired once it is extended to reduce the tension which would be otherwise necessary to maintain if the cover were to remain above the water line.

One advantage that has been found in utilising the invention is that creasing of the fabric as it rolls is markedly reduced where two or more fabric panels are wound up together, as compared with rolling a single panel in a conventional arrangement.

In another embodiment of the invention, an awning in which one horizontal "ceiling" panel 15 is formed from one sheet of material, whilst a second sheet forms a vertical "wall" is envisaged. The keyway tube in this case may conveniently act as the junction of the wall and ceiling portions, being itself a rigid member to further provide stability and integrity to such a structure.

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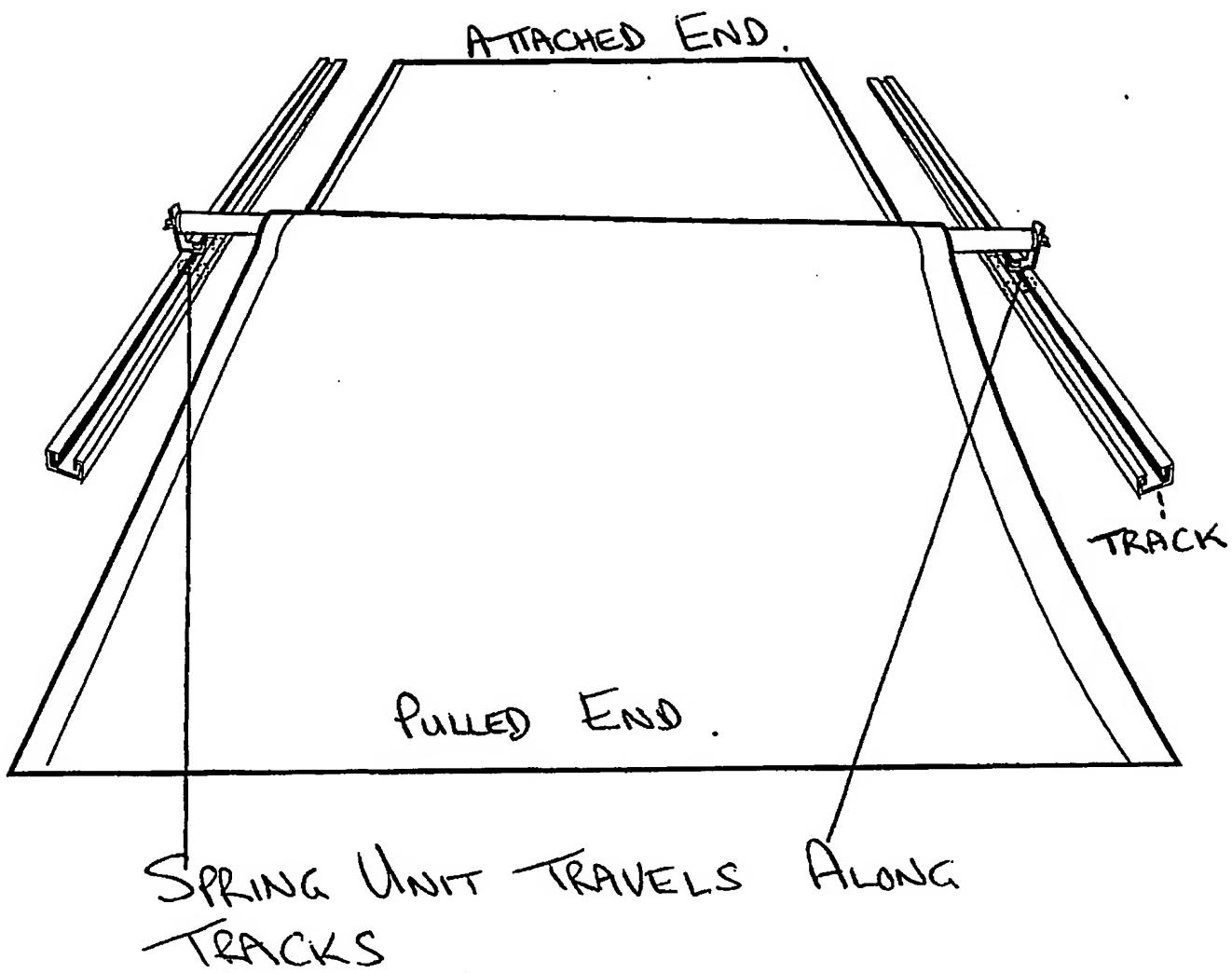
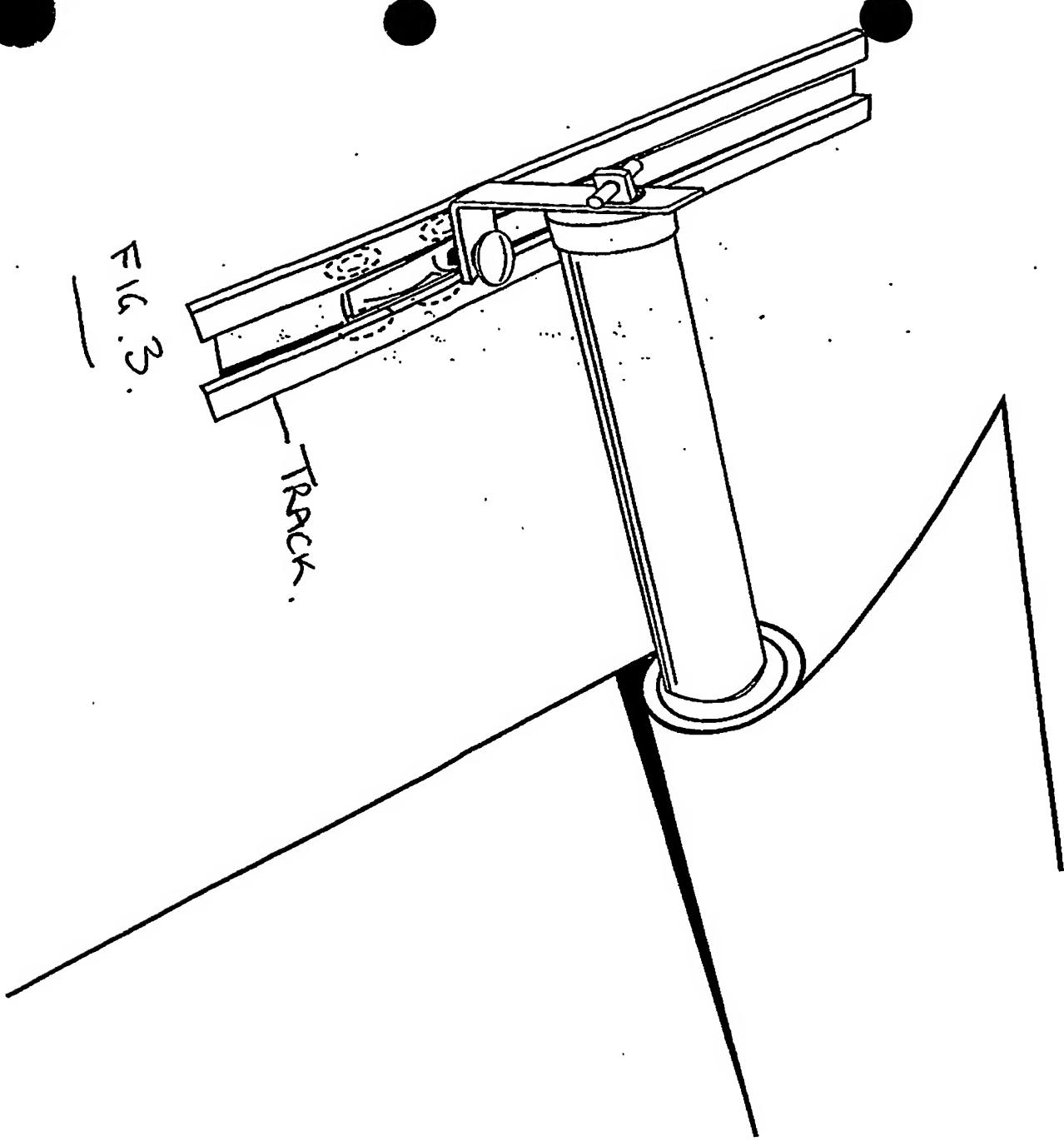


FIG I

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Fig. 3.



WHEEL UNIT

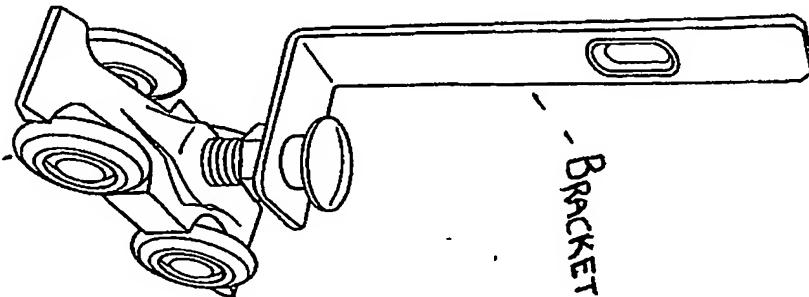


Fig. 2

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